PCS wireless networks being installed in Oklahoma City and Tulsa, so that it could become facilities-based.

Dobson Wireless. Dobson has an approved negotiated resale agreement with SWBT, and plans to enter initially as a reseller. It expects to begin offering service as a reseller within the next month and is currently awaiting tariff approval. Dobson is also in the process of negotiating an interconnection agreement with SWBT. It is still negotiating physical collocation terms. Dobson ALTS' Motion Comments at 3. Dobson would like to serve business customers on at least a partial facilities basis, id. at 1, but it presently has no plans to offer facilities-based residential local service in competition with SBC. Dobson does own two independent rural LECs in other geographic areas of Oklahoma as well as cellular systems. It is not yet operational as a local exchange service provider in SBC's service area in Oklahoma, though it is already doing business in other areas such as long distance, fiber backhaul and Internet access and derives substantial local exchange revenues from its independent LECs in service areas separate from SWBT's.

Western Oklahoma Long Distance ("WOLD"). WOLD has an approved negotiated resale agreement with SWBT and would enter as a reseller, having no facilities at present. It is not yet operational and is still in dispute with SBC over provisions of its agreement, primarily ancillary charges for the use of certain OSS systems charges that were not listed in the agreement. WOLD could potentially begin reselling SWBT service within the next month.

Some Other Significant Potential Competitors

AT&T. AT&T, which concluded an arbitration proceeding with SWBT in November 1996, is still negotiating with SWBT over terms which were not addressed in the arbitration award and so currently has only a partial agreement that has not been filed with the OCC for approval. The AT&T - SWBT post-arbitration negotiations will likely lead to mediation or further arbitration before a complete agreement can be reached. SBC Brief at 6. n.8. AT&T, as it has normally done across the nation, requested all of the checklist elements from SWBT, so as to enable it to provide its planned service platform using a combination of unbundled network elements. Because it does not yet have an agreement, AT&T is not yet operational as a local service provider in Oklahoma. AT&T would likely enter initially as a reseller, or using an unbundled elements platform if available, though it has longer-term plans to develop facilities using its PCS licenses to develop a wireless local loop.

Cox Communications. Cox Communications, which is a potential facilities-based provider, reached a negotiated interconnection agreement with SWBT for Oklahoma on April 10, 1997, one day before this application was filed, and this agreement was submitted to the OCC on April 28, 1997. Phillip Decl. ¶ 3. Cox and SWBT have agreed to use the AT&T arbitrated prices on an interim basis pending final pricing proceedings in Oklahoma, though they may still have some disputes about pricing. Id. ¶ 4. Cox, like Brooks, has had problems with SWBT in obtaining physical collocation on a timely and reasonable cost basis. Storey Aff. ¶¶ 6-8.;

[redacted]

trunks. Id. ¶ 9. Cox has the potential to be a formidable facilities-based competitor to SWBT in Oklahoma City, where it has facilities, based on its cable system, which pass 95% of the residential customers.[141] Its fiber has been upgraded to handle two-way communications, and it has a switch in Oklahoma City as well. It has already been providing exchange access services for three years through Cox Fibernet in Oklahoma City. Cox would serve both residential and business customers in Oklahoma City, beginning downtown and expanding to the suburbs. Before it filed for arbitration, Cox indicated that it planned to deploy facilities-based service to residential customers in the fall of 1997. Based on the agreement it has reached with SWBT, Cox has said that it believes it could be operational in Oklahoma City in June or July of 1997.

ACSI. ACSI is a competitive access provider ("CAP") in Tulsa, currently operating as a special access provider but not a local exchange service provider. ACSI is currently constructing a 50 fiber mile network, which is expected to be completed by mid-1998. Wheeler Aff. ¶17. At present, based on a diagram in one of SBC's affidavits, ACSI's network appears to cover a 10 square block area in downtown Tulsa. Wheeler Aff. Schedule 1. ACSI does not have a local switch installed. Recently ACSI entered into an interconnection agreement with SWBT, which was filed with the OCC on May 5, 1997 but has not yet been approved. It is unclear whether ACSI would enter first on a resale or partial facilities basis, but it could be a facilities based provider with respect to some customers.

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[141] Reply Comments of Cox Communications Oklahoma City, Inc., OCC Cause No. PUD 97-64, at 1 (Mar. 25, 1997).

TAB C

EXHIBIT

AFFIDAVIT OF MARIUS SCHWARTZ

COMPETITIVE IMPLICATIONS OF BELL OPERATING COMPANY ENTRY INTO LONG-DISTANCE TELECOMMUNICATIONS SERVICES

AFFIDAVIT OF MARIUS SCHWARTZ

May 14, 1997

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Professional Background

1. My name is Marius Schwartz. I am a Professor of Economics at Georgetown University. I received my B.Sc. degree with first-class honors from the London School of Economics and my Ph.D. in economics from the University of California at Los Angeles. My research areas are in industrial organization, antitrust and regulation. I have published on these subjects and have taught courses at Georgetown University and to executives and government officials in the U.S. and other countries.

2. From April 1995 to June 1996, I served as the senior staff economist at the President's Council of Economic Advisers responsible for antitrust and regulated industries. Much of my work was on regulatory reform in telecommunications, and I participated in the development of the Administration's policy leading up to the enactment of the 1996 Telecommunications Act. From 1980 to the present, I have served intermittently as a consultant to the Antitrust Division of the Department of Justice on a wide variety of competition matters. I have also consulted for the OECD, World Bank, USAID, and private clients. My curriculum vitae is attached to this affidavit.

Scope of Assignment

3. I have been asked by the Antitrust Division of the U.S. Department of Justice to analyze the economic conditions under which authorizing regional Bell Operating Company (BOC) provision of in-region interLATA telecommunications services ("BOC entry") would be consistent with the public interest in competition, under the entry standard of § 271 of the Telecommunications Act of 1996 ("Act"). I have also been asked for my opinion, in light of my analysis, regarding the Justice Department's general standard for evaluating BOC applications under § 271 that is described in the Department's comments filed with the Federal Communications Commission. As part of my analysis I have considered both the potential costs and benefits of authorizing interLATA entry by the BOCs, consistently with the specific provisions and overall competitive objectives of Act. I have not been asked to consider whether any individual BOC has met the requirements of § 271 in a particular state.

4. In connection with this assignment, I have drawn on the relevant economics literature and consulted with other academics, regulators, practitioners, and industry participants. I have also

reviewed numerous documents, including but not limited to: submissions in connection with the Motion to Vacate the MFJ that was filed by four BOCs in 1995; submissions in the FCC's proceedings to implement the 1996 Act's provisions on local competition, accounting and non-accounting safeguards, and reform of universal service and access charges; the FCC's relevant Orders; regulatory filings with state commissions; documents submitted to the Department of Justice pursuant to the pending mergers between Bell Atlantic and NYNEX, and SBC and Pacific Telesis; and numerous responses submitted to the letter request of Acting Assistant Attorney General Joel Klein issued on November 21, 1996, concerning the competitive impact of interLATA entry by the BOCs ("responses to Joel Klein letter").

5. My assessment is that the Department of Justice's entry standard strikes a good balance between properly addressing the competitive concerns raised by BOC entry, and realizing the benefits from such entry as rapidly as can be justified in light of these concerns. The Department's standard, therefore, is consistent with the public interest in competition reflected in the entry test of section 271 of the Telecommunications Act.

Summary of Analysis and Conclusions

6. The 1996 Act aims to increase competition in *all* telecommunications markets; for the first time, this includes local markets that today are largely regulated monopolies. It is therefore necessary to evaluate the effects of BOC entry not only on competition in long-distance services, but also in local services and in "integrated services" (the offering of both local and long-distance services—whether bundled or separately—by the same provider).

7. Under appropriate conditions, BOC entry holds the promise of yielding significant benefits to the BOCs and to consumers. The principal benefits may include: (a) reductions in retailing costs enabled by joint provision of local and long-distance services; (b) offering consumers valuable new options from dealing with providers of integrated services, e.g., the convenience of one-stop shopping for all their telecommunications requirements; and (c) increasing the degree of competition in long-distance services (both in interLATA services through BOC entry; and in intraLATA toll services in multi-LATA states that now lack dialing parity for entrants, since the Act requires intraLATA dialing

parity in such a state when and only when BOC interLATA entry occurs in the state).

8. BOC entry, however, also raises potential concerns. The principal risk of authorizing premature BOC entry is that doing so will result in significantly less BOC cooperation, than could be induced by an appropriate entry standard, in providing good access at cost-based prices to the various functions and services of a BOC's local networks needed by entrants wishing to offer local or integrated services. These requisite "wholesale local services" include interconnection, unbundled network elements, and discounted local service for resale. Securing efficient access to these services of the BOCs' ubiquitous local networks will be critical for some time to the development of competition in local and integrated services. A BOC's monopolistic withholding of such access cooperation would be a potent and destructive form of rivalry: it would raise competitors' costs, degrade their quality, and deny consumers the benefits of new products. And if facilities-based local competition fails to develop, BOC entry could pose a growing threat to long-distance competition, since today's established access arrangements will increasingly require changes over time.

9. Authorizing premature BOC entry would prematurely reduce a BOC's cooperation incentives for two main reasons: (a) the BOC stands to gain if it can leverage its local market power into the newly opened markets for long-distance and integrated services; and (b) the BOC is emboldened to stiffen its resistance to local competition having secured its coveted long-distance authority. After explaining these incentives, I argue that regulatory and other post-entry safeguards are considerably less likely to secure the new BOC arrangements for local competition than would a more procompetitive entry standard.

10. First, consider leverage incentives. Once the BOC offers long-distance retail services and thus integrated retail services, it becomes a competitor to its access customers—carriers that must purchase from it access services used to provide these retail services. A BOC then becomes less willing to provide access services to others than if it did not offer the retail services itself. This reduced willingness arises in large part, though by no means entirely, because a BOC's prices for wholesale local services and for local retail services are likely to remain more tightly regulated than its prices for long-distance retail services. Asymmetric regulation of this sort pushes a firm to evade regulation by leveraging the more tightly regulated market power into the less regulated services that

require access to the regulated bottleneck services. To raise prices of unregulated services, a BOC must undermine competitors; this it might do—if unchecked by regulation—through various forms of "access discrimination" that raise competitors' costs or degrade their quality.

11. Leverage into long-distance services would entail a BOC's degrading of competitors' long-distance access arrangements; a BOC's ability to do so, however, is limited in the short run (see ¶ 14). But leverage into integrated services could entail degrading of competitors' long-distance access or denying to competitors good access to its wholesale *local* services—because competitors need both to offer integrated services. Undermining integrated-service competitors by restricting their access to wholesale local services could enable a BOC to charge higher prices for its unregulated long-distance services for two reasons: (1) competitors are denied cost savings from joint provision of services, which could raise their cost of providing long-distance services and thus weaken the discipline they impose on the BOC's prices; and (2) some consumers would be willing to pay a premium for dealing with a provider of integrated services, reflecting, for example, the value of one-stop-shopping.

12. Second, and independent of such incentives to leverage market power into long-distance or integrated services, a BOC like any dominant incumbent is inclined to resist cooperating with local entrants that threaten its core local market power. This resistance can be softened—though not eliminated—by authorizing a BOC's long-distance entry only if its adequate cooperation with local entrants has first been secured. Before entry is authorized, the lure of added profit from long-distance and integrated services gives the BOC an incentive to expedite its required cooperation; after entry, however, time is on the BOC's side and its inclination to cooperate correspondingly diminishes. As a practical matter, rescinding a BOC's entry authority if it slows down its cooperation may well be difficult as well as disruptive. (Halting its future marketing efforts may be a more practical option, but is also less potent.)

13. For these reasons, once a BOC's entry is authorized, its incentives to cooperate in providing network access to competitors will diminish significantly. Therefore, a key question is: how effectively can regulatory and other safeguards enforce the requisite BOC cooperation post entry in the face of reduced BOC incentives? Economic reasoning suggests—and historical experience

confirms—that the efficacy of regulatory and other "outside enforcement" varies widely with the economic environment. Regulation fares much better in a stable environment where regulators understand what is and is not standard practice, than in a rapidly changing environment where more frequent adjustments are needed and informational asymmetries are greater. Correspondingly, regulatory oversight can do a reasonable job of maintaining well-established arrangements; but it is far less adept at forcing incumbents to rapidly implement new arrangements, as the lack of historical benchmarks on acceptable performance gives incumbents great latitude to engage in plausible deniability. These observations have important implications.

14. Access arrangements for long-distance services are largely well established; hence regulatory and other safeguards can prevent significant degradation. Although the necessary access arrangements will certainly evolve over time, I understand that radical changes in technical arrangements governing the majority of interexchange revenues are not imminent. While customized arrangements pose a potential problem, such arrangements are used mainly by large customers for whom competitive access alternatives have developed more rapidly. On balance, therefore, regulatory and other safeguards can render the threat to technical arrangements for long-distance access tolerable, at least in the short run.

15. The picture is quite different for access arrangements to wholesale local services. These requisite arrangements are largely new; their implementation will require extensive cooperation by incumbents in developing a host of technical, operational and business protocols, and in establishing appropriate prices.

16. Mandating incumbents' cooperation, as the Act does, surely helps; but the process will evolve much more quickly and efficiently if incumbents have better incentives to cooperate. Thus, the Act sets up the § 271 process which, as is widely acknowledged, only allows for BOC entry when such local-competition access arrangements are meaningfully made available and the market is truly open to competition. This sequencing serves important purposes, as described below. Regulators and other outside enforcers have significantly inferior information than a BOC about how to implement these new systems and how long the task should take. These informational asymmetries hinder reliance on post-entry measures (such as halting BOC marketing of long-distance services, or

imposing financial penalties) to force BOC implementation of these new arrangements, since enforcers' uncertainty about how long implementation should take makes it difficult (and inefficient) to specify rigid deadlines.

17. As the § 271 sequencing recognizes, however, these difficulties can be significantly mitigated by requiring as pre-conditions for BOC entry that all major new systems necessary to open the local market have been made available to entrants, and that their performance has been sufficiently demonstrated; absent such a demonstration, one cannot be confident that the systems indeed do what they promise. Such an entry standard does a better job of aligning incentives: the more informed BOC then has stronger incentives to implement things rapidly in order to expedite opening the local market and thereby its own long-distance entry. And establishing performance benchmarks to gauge the functioning of these new arrangements before authorizing BOC entry renders post-entry safeguards—regulatory, antitrust and contractual—more effective at countering subsequent BOC incentives to degrade these arrangements. Thus, authorizing BOC entry only after a BOC institutes the new access arrangements that are necessary to open the local market to competition is likely to greatly accelerate the emergence of local competition.

18. Although delaying BOC entry until the local market is open may impose some costs, the more rapid opening of the local market that will result is likely to yield significantly larger benefits to consumers. The local market is more than twice as large as long distance (net of access charges), and is largely a regulated monopoly; thus, adding even a modest dose of competition could yield major gains in lower costs and prices, improved service, and product innovation. BOC cooperation in providing wholesale local services also could permit others to compete relatively quickly in integrated services (such as by reselling local services along with long-distance and other services); the ability to offer integrated services is important to enabling long-distance carriers and others to compete effectively with a BOC once it is authorized to offer long-distance service. And in the long run, facilities-based local competition can aid regulation—and eventually, one would hope, supplant it—in safeguarding access arrangements for long-distance services in a less intrusive manner.

19. The foregoing analysis persuades me that BOC entry is appropriate when, and only when, the market in the state has been irreversibly opened to local competition. I believe this entry standard will

provide incentives to the BOCs to extend the cooperation necessary to open local markets more rapidly and efficiently; will help establish the benchmarks enforcers need to maintain the new access arrangements post entry; and will permit BOC entry as rapidly as is consistent with these constraints. Opening the market does not require evidence of local competition of all forms and in all regions of a state sufficient to substantially discipline BOC market power. The Act aims to let market forces determine what forms of entry work best and where; and regulatory and other safeguards will still play a role in disciplining BOC abuse of market power. But, at a minimum, opening the local market requires full, meaningful implementation of the § 271 competitive checklist, not mere paper compliance.

20. By far the best test of whether the local market has been opened to competition is whether meaningful local competition emerges. Local competition establishes presumptions; the more widespread and varied it is, the greater our confidence that the market has been opened. In particular, use on a commercial scale of the new access arrangements needed to support all three modes of local entry envisioned in the Act—facilities-based, unbundled elements, and resale—demonstrates that competitors are obtaining what they need from the BOC. Local competition, even on a modest scale, can also signal entrants' willingness to commit investments and demonstrate their confidence in the openness of the market. Finally, the presence of local competitors can directly assist regulators in preventing future backsliding by the dominant incumbents.

21. If sufficiently diverse competition fails to develop, it is important to understand why. As implied earlier, one possibility is simply lack of interest by entrants in pursuing certain entry modes in certain regions. But before reaching such a conclusion, it is important to ascertain that competition is not being stifled by artificial barriers. Thus, if sufficient competition fails to develop, there should be a rebuttable presumption that this is not due to lack of entrants' interest, but to a failure to irreversibly open the local market. Rebutting this presumption requires ascertaining that the main elements of an open market indeed are in place. The most important element, the logic for which was explained earlier, is the following. *New technical and operational arrangements must be available and shown to be working*: to support all three entry modes envisioned in the Act; on a sufficient scale, and capable of being rapidly expanded and extended to regions where they are not initially

implemented; and for sufficient duration and variety to provide reliable benchmarks to assess and enforce future cooperation.

22. *Procompetitive pricing* of these key inputs also is necessary to inspire confidence that, despite the absence of sufficient actual competition, the market is indeed open. Prohibitively high prices would render the new access arrangements meaningless; to permit efficient local entry, entrants must have adequate assurance that BOC prices for these inputs will remain reasonable and cost-based after interLATA relief is granted. (The FCC has determined that the appropriate costs are: forward-looking incremental cost for unbundled network elements and for transport and termination of local calls; and wholesale discounts off the retail price that are close to the incumbent's avoided retailing costs, in the case of local service sold to other carriers for resale.) Awareness that the § 271 entry process will weigh seriously whether key inputs are priced in a manner that supports efficient competitive entry will usefully complement state efforts in opening local markets.

23. Finally, one must ascertain that competition is not being hindered by any lingering *major state regulatory or other artificial barriers*. (Although such barriers may be subject to preemption under § 253 of the Act, the timeliness and effectiveness of any such FCC preemption decisions is uncertain.) If such barriers are likely for some time to seriously hinder competitors' ability to avail themselves of the new access arrangements put in place with BOC cooperation, these arrangements could become obsolete and the value of such BOC cooperation will decay; and securing this cooperation again once the barriers have been removed but after BOC entry has been authorized will be considerably harder.

24. In short, if sufficient local competition is observed, this demonstrates that the market has been irreversibly opened; if not, one should exercise more caution in approving the BOC's entry, and insist on offsetting evidence that the market indeed has been irreversibly opened. I have reviewed the Department of Justice's entry standard in light of this analysis. I conclude that it strikes a good balance between properly addressing the competitive concerns raised by BOC entry, and realizing the benefits from such entry as rapidly as can be justified in light of these concerns. It therefore serves the public interest in fostering competition.

I. The 1996 Telecommunications Act and BOC Entry into Long-Distance Services

25. The 1996 Act represents a major shift in U.S. telecommunications policy by establishing as a federal goal the promotion of competition in all telecommunications services. The most significant change is the requirement that local telephone markets, heretofore regulated franchise monopolies, be opened to competition. In addition and relatedly, the Act establishes a procedure for authorizing the BOCs to offer long-distance (interLATA) telecommunications services originating in their service regions after a BOC has sufficiently opened its local markets to competition and BOC entry is judged to be in the public interest.

26. Section A below reviews the main relevant telecommunications markets and Section B discusses the Act's goals of increasing competition and improving performance in these markets. Section C stresses why BOC cooperation will be critical to achieving the Act's goals, and section D discusses the benefits and costs of authorizing BOC entry before there is effective local competition. Based on this analysis, section E discusses the main principles that a procompetitive entry standard should incorporate.

A. The Major Telecommunications Markets Relevant to BOC Entry

27. The 1982 consent decree that broke up the vertically integrated Bell system (Modification of Final Judgment, "MFJ"[1]) created seven new regional BOCs, and divided those parts of the country served by the Bell system into Local Access and Transport Areas (LATAs); today, the BOCs serve 164 LATAs. Under the MFJ, a BOC could only offer telecommunications services within LATAs (intraLATA). InterLATA services have been provided by long-distance companies, also known as interexchange carriers (IXCs). Recently, however, some local exchange carriers (LECs) not subject to the Act's § 271 interLATA restriction on the BOCs, have been making serious inroads into long-distance services.

28. Superseding the MFJ, the 1996 Act authorizes any BOC immediately to offer long-distance (interLATA) services that originate in states outside its service regions. But to offer interLATA

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[1] *U.S. v. AT&T*, 552 F. Supp. 131 (D.D.C., 1982). Judge Greene entered the MFJ on August 24, 1984, and the divestiture was consummated January 1, 1984.

services originating in its region, a BOC must receive FCC approval under § 271 of the Act. A BOC applies for approval state-wide.[2] Approval is granted only after the FCC determines all of the following: (a) which if any of the two tracks stipulated in the Act the BOC is eligible to use at the time to satisfy the *competitive checklist* requiring it to open its local markets in the state to competition: Track A (interconnection agreement with a facilities-based competitor serving business and residential customers), or Track B (statement of generally offered terms to competitors where no request has been made by a provider for access and interconnection); (b) after consulting with the state commission, determines that the BOC, through Track A or B, has satisfied the competitive checklist; and (c) determines that such approval is in the *public interest*. In making its determination on a § 271 application, the FCC must consult with the Department of Justice and give substantial weight to its competitive assessment. (In addition, § 272 requires the BOC to offer interLATA services, both in and out of region, through a separate affiliate subject to certain safeguards.)

29. Since the Act links a BOC's interLATA entry authority to the opening of its local markets, in advocating a particular entry standard one must consider its effects on competition in both interLATA and local markets.

1. The BOCs dominate key local networks and are regulated

30. Table 1 shows telecommunications revenues from local (intraLATA) markets now dominated by the BOCs in their regions, and from long-distance (interLATA) markets which the BOCs seek to enter. The data are for 1995, the most recent year for which comprehensive data are available.[3]

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[2] Once a BOC receives interLATA approval in any state, § 273 of the Act authorizes it also to enter manufacturing of telecommunications equipment, from which the BOCs are still barred. I have not been asked, in preparing this affidavit, to address equipment markets.

[3] The data come from the FCC's *Telecommunications Industry Revenue: TRS Fund Worksheet*, December 1996 (*TRS*). There are some relatively minor discrepancies between the *TRS* data and the FCC's *Statistics of Communications Common Carriers*, 1995/96 (*SCCC*). I use *TRS* data because it covers more local carriers. In most cases only LECs with annual revenues over $100 million are required to report to *SCCC* (the 53 such LECs reporting to *SCCC* for 1995 accounted for somewhat over 90% of all LEC revenues). In contrast, almost all telecommunications carriers (1,310) reported to *TRS* for 1995. Thus, *TRS* data cover more LECs (which helps explain some of the discrepancy between the *TRS* and *SCCC* data on LECs), and includes information on other local providers, CAPs (Competitive Access Providers) and CLECs (Competitive Local Exchange Carriers—new local entrants).

Despite some changes since the passage of the Act, notably an increase in the activity of local entrants (discussed shortly), the basic market relationships shown by the 1995 data have not changed markedly. Two points stand out. First, local revenues are twice as large as long-distance revenues (net of access payments collected by LECs). Second, incumbent LECs account for the vast majority of local revenues: $102.8 bn compared with a combined $0.6 bn for CAPs and CLECs; although CAP plus CLEC revenue has risen to about $2 billion in 1996, it is still dwarfed by LEC revenues.

31. In their service regions the BOCs have virtual monopolies over *switched* services, both local exchange and exchange access to long-distance carriers. They also dominate special (or dedicated) access used by long-distance carriers. And in most states they also dominate intraLATA toll services, due to the BOCs' continuing ability in those states to deny to IXCs dialing parity (the ability of a customer to make intraLATA toll calls through an IXC without dialing more digits than through the BOC) before the BOCs begin providing interLATA services in these states.[4] In 1995, the ratio of LEC revenues nationwide to long-distance revenue net of access was about 2-to-1 (Table 1); the BOCs accounted for about 73% of all LEC revenues nationwide (Table 1) and about 77% of all interLATA minutes originated in BOC service areas (*SCCC*, Table 2.10). The 2-to-1 ratio therefore is also a reasonable approximation of the relative sizes of (a) those markets which a BOC now dominates (local markets in its service areas) versus (b) those markets now closed to a BOC and in which the BOC would have the greatest impact (interLATA calls originating in its service areas).[5]

32. In recent years, certain local competition has emerged. In central business districts, CAPs have constructed networks that enable large customers to bypass LECs and link directly to IXCs (mainly to send but not receive calls), and provide some links between local private networks. One

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[4] Competition has been growing in intraLATA toll service, especially in states that introduced dialing parity between the incumbent LEC and IXCs. IXCs' were estimated to account for about $3.3 billion of intraLATA toll revenues in 1995, compared with $10.1 billion for all LECs (Table 1). I discuss intraLATA dialing parity further in section II.B.

[5] The Act bars a BOC (until it secures § 271 authority) from providing interLATA services that originate anywhere in its states, including parts of a state where local service is provided by other LECs not the BOC. However, the BOC's competitive significance in interLATA services is likely to be greatest for calls originating in its service areas, where it dominates local networks. (Reflecting the difference that control of local networks can make, the Act permits the BOCs to offer interLATA services originating in out-of-region states.)

can expect CAPs and CLECs to expand into switched services, since the 1996 Act preempts many legal barriers that had precluded competition for such switched services in many states.[6] But CAPs and other local entrants face more than just legal hurdles.

33. Expanding local operations is expensive, and requires significant cooperation from incumbents. As mentioned, the BOCs in their regions retain the only ubiquitous switched local networks. These consist of several major elements. (a) The *local loop* is the sets of wires linking subscriber premises to the telephone company's wire centers (or "central offices"). This local distribution plant is by far the most expensive network element; duplicating it on a large scale would be prohibitively costly, and probably inefficient. (b) *Switching* facilities allow subscribers to communicate indirectly (as opposed to using point-to-point links) with others. Virtually all residential subscribers and small businesses depend on switched local access to originate and to terminate both their local and long distance calls, as non-switched access is only economical for large users. (c) *Local transport* facilities are high capacity trunk lines that connect central offices or other switches. (d) The BOCs also control key *databases*, and key network *signaling* functions—the flow of information associated with setting up, disconnecting, and otherwise controlling a telephone call (information such as the identity of the parties, the duration of the call and the signal being transmitted, e.g., voice or data).

34. In view of their substantial market power, the BOCs and other LECs remain regulated in their prices for most local services and exchange access. Moreover, as explained shortly, the new Act requires incumbent LECs to offer numerous new "wholesale" local services at regulated prices to other telecommunications providers.

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[6] Indeed, Table 1 understates the revenues of CAPs and CLECs today. New Paradigm Resources Group (NPRG), based on data it developed together with Connecticut Research, reports the following trends. In 1996 CLECs, in which NPRG includes also CAPs, nearly doubled their revenues to $2.2 billion and increased their market shares for all service categories. Their estimated shares of national totals are: 0.4% of local services; 1.8% of intraLATA toll; 0.3% of switched access services; and 10.6% of dedicated access services. NPRG expects these shares to increase considerably in the mid-term future as CLECs are aggressively deploying switch facilities. Still, NPRG notes that these shares remain negligible when compared to incumbent LECs—consistent with the pattern in Table 1—and concludes that, although strong competition for dedicated access services may exist today for selected locations, for the overall local telecommunications market, robust competition does not exist today. NPRG, *Annual Report on Local Telecommunications,* 1996-97.

2. Long-distance markets are relatively competitive and largely unregulated

35. The extent of competitiveness of long-distance markets is hotly debated (see section II.C); but it is surely greater than in local services. There are four national IXCs, which in 1995 had the following revenue shares: AT&T 53%, MCI 18%, Sprint 10%, LDDS/WorldCom 5%; there are also numerous other carriers, with a significant total market share of 14% (*SCCC*, 1995/96, Table 1.4). And there is considerable switching of customers between carriers. In short, while there is not perfect competition, there is considerable competition.[7]

3. Inefficiencies in the present industry structure

36. While the MFJ succeeded in increasing competition in long-distance services, the current structure of the U.S. telecommunications industry is surely far from perfect.

37. *Losses from separation.* The MFJ's separation of activities based on LATAs imposes certain costs. As explained in section II, it precludes the BOCs from attempting to exploit various economies of scope, especially on the retailing side, associated with joint provision of local and long-distance services; from offering consumers the benefits of one-stop shopping and new services that require both local and interLATA facilities; and from bringing more competition to long-distance services (see the ensuing section I.D.1). LATA boundaries necessarily impose artificial separation between points near the boundaries, and do not always conform to economic markets or efficient network configurations. LATAs vary widely in size and population; intraLATA calls can travel hundreds of miles, thereby better resembling long-distance calls than local calls as regards the network facilities utilized.[8] For all these reasons, confining the BOCs (or any other firms) to particular geographic

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[7] In finding AT&T non-dominant, the FCC assessed that "most major segments of the interexchange market are subject to substantial competition today, and the vast majority of interexchange services and transactions are subject to substantial competition." *Motion of AT&T Corp. to be Reclassified as a Non-dominant Carrier*, 11 FCC Rcd 3271, 3288, ¶ 26 (1995). The FCC reiterated these views a year later: "Thus, we believe that market forces will generally ensure that the rates, practices, and classifications [of IXCs] are just, reasonable, and not unjustly or unreasonably discriminatory. . . . We also reject the unsupported suggestion that the current levels of competition are inadequate to constrain AT&T's prices." *Policy and Rules Concerning the Interstate, Interexchange Market*, CC Docket No. 96-61, Second Report and Order, FCC 96-424, ¶¶ 21, 22 (released October 31, 1996).

[8] To some extent this reflects the choice of relatively large LATA boundaries at divestiture (a typical LATA is much larger than a local exchange network). However, even if at divestiture LATAs had been drawn to maximize the degree of separation between the perceived local monopoly bottlenecks and the potentially

regions or types of services is not a first-best solution.

38. *Absence of local competition.* But the most glaring problem today is one that the MFJ was not designed to alter: the absence of local competition. Indeed, confining the BOCs may have been the best guardian of nascent long-distance competition in an era where persistence of the BOCs' regulated local monopolies was taken as given. Replacing such monopolies with local competition, however, can ultimately provide a better safeguard for long-distance competition,[9] while also allowing removal of current restrictions on the BOCs.

39. In addition to safeguarding competition in long distance, introducing local competition at this point is likely to yield even greater benefits by improving market performance in the provision of local services, including local exchange and exchange access, and of integrated services. The local market is more than twice as large as long distance (Table 1), and is largely monopolized by incumbent LECs. While regulation holds down some LEC prices, it introduces its own costs.[10] These include: a distorted price structure; rigidities in adjusting prices to changing conditions; and weakening firms' incentives to contain costs (if regulation is largely cost-based), to maintain quality (if regulation is of the price-cap variety), and to be innovative and responsive to customer demands. Where feasible, competition is far superior to regulated monopoly as a device for promoting cost reduction, innovation, and superior service.

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competitive segments, airtight separation would still be impossible. The boundary between "monopoly" and "potentially competitive" segments is not stationary, but changes with technology and the advent of new services. Any rigid regulatory separation is therefore bound to become imperfect.

[9] The BOCs' own statements implicitly acknowledge that regulation is an inferior safeguard to competition. "This competition (from CAPs) was driving the Bell companies to lower the price *and raise the quality* (emphasis added) of their local exchange services even before the 1996 Act." Joint Response of Bell Atlantic and US West to Joel Klein letter, December 13, 1996, 32-33.

[10] Robert W. Crandall and Leonard W. Waverman, *Talk Is Cheap: The Promise of Regulatory Reform in North American Telecommunications,* The Brookings Institution, 1995, chapters 3, 8 ("Crandall and Waverman, 1995"). Gerald W. Brock, *Telecommunications Policy for the Information Age: From Monopoly to Competition*, Harvard University Press, 1994, chapters 12, 14, 15.

B. The New Competitive Vision in the 1996 Act

40. The 1996 Act creates a clean slate and offers an unusual opportunity to remedy many of the above deficiencies in the present industry structure.

1. The Act aims to promote unfettered competition in all markets

41. The Act's unifying goal is increased competition in all markets and the eventual elimination of artificial service boundaries. This means more competition in providing: local services; long-distance services; and "integrated services"—the options of one-stop shopping for, or obtaining bundled packages of, these and other telecommunications services.[11]

42. If successful in promoting local competition, the Act will eventually allow the replacement of detailed, hands-on regulation of local retail prices and services with a combination of local competition and more confined and less intrusive regulation of only key bottleneck network services.[12] (Some regulation of interconnection, especially of termination charges, will be necessary for some time, as explained shortly.) And it will permit any firm to offer any service anywhere, including doing away with restrictions on what services the BOCs may offer and how. As the FCC put it:

> Indeed, the relationship between fostering competition in local telecommunications markets and promoting greater competition in the long distance market is fundamental to the 1996 Act. . . the opening of one of the last monopoly bottleneck strongholds in telecommunications -- the local exchange and exchange access markets -- to competition is intended to pave the way for enhanced competition in *all* telecommunications markets, by allowing all providers to enter all markets.[13]

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[11] One-stop shopping and bundled packages are closely related notions, but not identical. One-stop shopping lets a customer obtain the same services as before, but from a single source. Bundled packages entail combining and pricing the individual services in new ways. Some customers may demand only one-stop shopping; others may value bundles, while continuing to shop for individual elements separately (e.g., in response to special promotions); still others may choose to purchase only integrated bundles and only from the same source. For brevity I will refer to these features collectively as "integrated services."

[12] See, e.g., Joseph Farrell, "Creating Local Competition," Speech delivered at FCC, May 15, 1996 ("Farrell 1996").

[13] *In the Matter of Implementation of the Local Competition Provisions in the Telecommunications Act of 1996*, CC Docket No. 96-98, First Report and Order, (Aug. 8, 1996) ("Local Competition Order"), ¶ 4.

2. The Act seeks to enable various forms of local competition

43. The Act discusses three forms of entry into local markets: facilities-based, resale, and unbundled network elements.

44. *Facilities-based entrants* serve their subscribers using their own network facilities except to exchange traffic with the incumbent LEC.

45. *Resellers* bring no independent network facilities, but resell under their own name the existing services provided by the incumbent (total service resale), combined perhaps with other services. They undertake all the relevant customer-interface functions such as billing and marketing ("retailers" is therefore a better description than the conventionally-used "resellers," since the latter suggests only an arbitrage function).

46. *Entrants using unbundled elements* may lease from the incumbent unbundled network elements, individually or in combination, for example, leasing the incumbent's unbundled loops but providing their own switching facilities.[14]

47. All the above entry modes can serve valuable competitive roles. Facilities-based entry potentially exerts the greatest competitive discipline on the incumbent. But it may not always be desirable, as it could require costly duplication of existing facilities such as loops that could more economically be obtained from the incumbent. Even where desirable, such entry could take considerable time. It is thus important to recognize the potential value of the other two entry modes.

48. Entry by firms that are not entirely facilities based can be beneficial in various ways. First, an entrant could bring direct competitive discipline to those segments it enters, in the form of lower costs and prices or higher quality. For example, resellers might perform retailing functions more effectively than an incumbent; loop unbundlers might limit an incumbent's ability to discriminate against IXCs through control over the intelligence embedded in the switch. Even entrants that are no more efficient could undercut the incumbent by accepting a lower profit margin—because regulation is

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[14] Important differences between resale and the use of unbundled elements stem from the different standards for pricing stipulated in the Act in the two cases (as I explain in section V), and from increased opportunities that use of unbundled elements offers for access competition, product and service innovation, and eventual migration to facilities-based entry.

unlikely to succeed in lowering the incumbent's prices all the way to cost. In addition to such direct competitive discipline, entrants can provide indirect discipline: by giving regulators a benchmark of true costs or technical capabilities, they can assist them in better regulating the incumbent.

49. Second, such entry can increase product variety and quality. For example, reselling local services enables entrants that provide also other services to offer one-stop shopping without having to build facilities for all their services or in all regions; the major IXCs among others view such ability as very important. Resellers or entrants using unbundled elements might offer new pricing plans better tailored to certain customers than are the incumbent's offerings. Entrants using unbundled loops might offer new switch-based ("vertical") services. More generally, smaller entrepreneurial firms could stimulate innovation if given the opportunity to specialize in segments where they enjoy a comparative advantage while obtaining from the incumbent at cost-based prices other unbundled elements they require.

50. Third, such entry modes can assist and accelerate the transition to full-facilities competition, by allowing entrants to attain a customer base before being forced to build extensive facilities. Requiring entrants to be entirely facilities-based at the outset would saddle them with unnecessarily high fixed costs and excess capacity (while subscribers are being added), making entry more risky and more costly. Conversely, granting entrants access at reasonable prices to complementary LEC facilities during the transition could permit a faster and more economical transition to full-facilities competition. Indeed, in the long-distance market some entrants began mainly as resellers and added their own capacity as their name recognition and subscriber base grew.[15]

51. Recognizing the potential value of all entry modes, the FCC observes: "Section 251 neither explicitly nor implicitly expresses a preference for one particular entry strategy. Moreover, given the likelihood that entrants will combine or alter entry strategies over time, an attempt to indicate such a preference in our section 251 rules may have unintended and undesirable results. Rather, our

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[15] In long distance, however, there is an active wholesale market because multiple facilities owners compete to provide bulk capacity. Before such competition emerged, regulation was required to induce AT&T to provide wholesale capacity to others. Similarly, implementing local resale today—and other wholesale local services—will require regulation as long as LECs retain dominance over local networks.

obligation . . . is to establish rules that will ensure that all pro-competitive entry strategies may be explored." (Local Competition Order, ¶ 12.)

C. Cooperation by Incumbent LECs Will Be Critical

52. Removal of legal and regulatory barriers is enormously important to promoting local competition, which is the key to securing the Act's goals. But Congress recognized that removing legal barriers is only half the battle. One must also remove artificial obstacles mounted by incumbent LECs, since all local entrants need access to certain LEC inputs.

53. *Facilities-based entrants require interconnection.* A facilities-based entrant would still require good and reasonably-priced interconnection to the LEC's public switched network. Interconnection is vital because the essence of communication is the ability to reach and be reached by others. Thus, telephone service exhibits such unusually strong positive "network externalities"—the network's value to a subscriber increases greatly with the number of subscribers that can be reached through the network. Initially an entrant will have far fewer subscribers than the incumbent, so if networks were not adequately interconnected, customers would prefer the incumbent's even if the entrant's network was otherwise superior.

54. As a result, the incumbent can use ubiquity advantages that derive from control of its installed subscriber base and bottleneck facilities as strategic weapons to stifle entry.[16] For example, the incumbent might impose onerous interconnection terms or deny number portability (the ability of

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[16] A transparent example of the importance of "interconnection" (or "compatibility") in the face of ubiquity, is directory assistance. A firm with only a small subscriber base would be inherently limited in its ability to offer adequate such services—whether through operator services, yellow pages, or other modes—if denied access to the necessary information about the incumbent's subscribers. Industrial organization economists have recognized the importance of ubiquity and installed-base advantages in industries characterized by strong (positive) network externalities. Non-technical surveys of this literature and relevant bibliography can be found in Michael L. Katz and Carl Shapiro, "Systems Competition and Network Effects," *Journal of Economic Perspectives*, vol. 8, no. 2, Spring 1994, 93-115, and Stanley M. Besen and Joseph Farrell, "Choosing How to Compete: Strategies and Tactics in Standardization," same journal and issue, 117-131. The need for interconnection (broadly defined) is probably more acute in telecommunications than in any other industry. For a recent formal analysis of strategic use of interconnection pricing (what the 1996 Act calls "transport and termination" charges) to reduce competition see Jean-Jacques Laffont, Patrick Rey, and Jean Tirole, "Network Competition: I. Overview and Nondiscriminatory Pricing," and "Network Competition: II. Price Discrimination," Institut d'Economie Industrielle, Toulouse, 1997.

customers to maintain their telephone numbers if they switch to an entrant). Overcoming such ubiquity barriers in telecommunications would be very difficult without the aid of regulation. On this point, economists are—quite out of character—virtually unanimous. Thus, until the incumbent's share of subscribers is significantly eroded, even efficient facilities-based competitors will depend on continued regulation to discipline the incumbent's interconnection terms and prices; to secure number portability; to allow its customers to call any subscriber of the incumbent in the local area without dialing more digits than would another subscriber of the incumbent ("local dialing parity"); and to access common signaling facilities and databases.

55. *Resellers require adequate wholesale discounts.* Resellers require the incumbent's cooperation in switching over customers and in obtaining access to various operations support systems. In addition, since resellers undertake costly retailing functions such as marketing and billing otherwise performed by the LEC, to succeed even an efficient reseller must obtain the LEC services at wholesale prices discounted off the LEC's retail prices by an amount equal to the LEC's avoided retailing costs.

56. *Partial-facilities entrants require network unbundling.* Like a full-facilities entrant, a partial-facilities entrant also requires interconnection so its subscribers can communicate with the incumbent's. But it requires also network unbundling—access at economical pricing to that *subset* of network elements it wishes to lease from the LEC. The degree of incumbent cooperation needed to make unbundling work efficiently is probably even greater than for the other two entry modes, since unbundling can involve reaching deeper into the network.[17]

57. The Act (§§ 251, 252) requires incumbent LECs to provide the above requisite cooperation to all local entrants. But requiring incumbent cooperation and attaining it are two different things. Incumbents are naturally inclined to resist any encroachment by competitors, and regulators will have their work cut out for them in implementing the Act's requirements for promoting local competition.

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[17] As a general matter, although unbundling requirements may generate competitive benefits, such requirements potentially create organizational diseconomies as well. The extent of these benefits and costs vary from industry to industry, and depend also on the degree of unbundling that is required. The 1996 Act reflects a policy judgment that it will be economically beneficial to require the unbundling of certain elements of the networks of incumbent LECs, and I have assumed here that this Congressional judgment is correct.